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ABSTRACT

This book analyzes and discusses what is currently known about the benefits and costs of assessment programs for institutions of higher education. It is designed to provide a framework that can be applied by both institutional and state-level academic administrators as they consider which kinds of assessment approaches best fit their own needs and conditions. Chapters are as follows: (1) "Assessment in Higher Education: Some Background"; (2) "Some Caveats on Estimating the Costs and Benefits of Assessment"; (3) "Identifying Benefits, Costs, and Parties-at-Interest"; (4) "Applying the Framework to Some Policy Choices"; and (5) "Conclusion". Contains 45 references. (GLR)

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Benefits and Costs of Attendance at Higher Education

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Preface

Over the past four years, calls to investigate and improve the quality of higher education have rapidly escalated. Among the most visible and insistent have been initiatives aimed at determining the outcomes of undergraduate instruction. The resulting "assessment movement" has become a national phenomenon--embracing activities as diverse as state programs to determine the basic skills of entering freshmen, state and accreditation-based efforts to encourage colleges and universities to broadly investigate undergraduate outcomes, and a range of institutional efforts including testing, student surveys, and program evaluation.

Despite considerable activity, evidence about the relative effectiveness of assessment efforts remains scanty. Partly this is because most are new and have consequently had little opportunity to show results. Partly it is because documentation of both the benefits and the costs of "assessment" remains elusive. Within these substantial limits, the purpose of this monograph is to analyze and discuss what is currently known about the benefits and costs of assessment programs. The result should be a framework that can be applied by both institutional and state-level academic administrators as they consider which kinds of assessment approaches best fit their own needs and conditions.

1

Assessment in Higher Education: Some Background

Current interest in assessing the outcomes of undergraduate education is rooted in two simultaneous but independent developments. The first is reemerging concern about the structure and content of the undergraduate curriculum. Partly fueled by national investigations of deficiencies in elementary and secondary education (for example the *Nation at Risk* report issued by the U.S. Department of Education in 1983), a number of reform proposals directed toward improving undergraduate education emerged in 1984-85. Among them were *Involvement in Learning* (the report of the National Institute of Education's Study Group on the Conditions of Excellence in American Higher Education), *Integrity in the College Curriculum* (issued by the American Association of Colleges), *To Reclaim a Legacy* (a report of the National Endowment for the Humanities), and *Access to Quality Undergraduate Education* (issued by the Southern Regional Education Board).

The consensus of these reports--originating for the most part from within the academic establishment--was that undergraduate instruction was in need of considerable overhaul. Particularly recommended were (1) greater curricular coherence with respect to curricular content and structure, (2) higher expectations and standards, (3) greater opportunity for active student involvement in learning, (4) improved capabilities to identify and remediate learning deficiencies in incoming students, and (5) better mechanisms for providing "feedback" on learning to students, faculty and administrators in order to guide improvements. It is important to note that only the last two of these directly embrace "assessment" as it is currently understood. And both go considerably beyond the notion of collecting information on undergraduate student performance by stressing the actual uses to which such information will be put. Effective "assessment" in this tradition is institution-specific and emphasizes the continuous improvement of student performance. It is integrated and faculty-centered, employing multiple methods, and linked as fully as possible to the day-to-day fabric of institutional decisionmaking.

A second stimulus for "assessment" is increased pressure for accountability with regard to public funds invested in higher education. One component concern is the escalating cost and complexity of public postsecondary education. Both legislators and governors have become increasingly sensitive (especially in tight budget years) to the fact that they know very little about the actual impacts of investments that can consume substantial proportions of state general revenue funds each year. At the same time, higher education leaders have become more sophisticated in their claims about public benefit (Ewell 1990). Links between proposed investments in public higher education and statewide economic development--particularly in high technology areas--have become increasingly visible in the past decade. Both trends have focused the attention of officials and the wider public more explicitly on higher education's overall return on investment. In the mid-eighties, these concerns

also spawned a series of national reports--prominently among them *Transforming the State Role in Undergraduate Education: Time for a Different View* (issued by the Education Commission of the States) and *Time for Results* (a report of the Task Force on College Quality of the National Governors Association).

Like the "academic improvement" reports that preceded them, these "reform" documents called for more and better data about the results of undergraduate study. In addition, however, they recommended that such information (1) be publicly available and comparable across institutions, (2) be used to inform policy and resource allocation decisions at the state level, and (3) be appropriate to inform "consumer choice" on the part of students and their parents in the decision of which college to attend. Effective "assessment" within this tradition emphasizes demonstrable return on investment with respect to student outcomes. To be maximally credible, assessment techniques are expected to be straightforward and easily understood, and should if possible result in quantitative indicators of program performance. While academic improvement remains a goal, it is to be achieved primarily through the action of external market forces informed by assessment results, and through the application of direct sanctions and incentives applied to higher education institutions through their governing and regulatory bodies. A major policy alternative here is "performance funding": those institutions best demonstrating their "effectiveness" will derive commensurate rewards in the form of additional resources. An alternative policy choice is directed investment: here marginal resources are directed toward particular institutions to address designated problems or deficiencies which assessment reveals.

Together, institutional and state policy developments have stimulated an immense variety of "assessment" initiatives. Because of the sheer range of alternatives, some specification of the types of programs currently being undertaken is an important prerequisite for a discussion of costs

and benefits--both of which will vary widely depending on program scope, intent, location, and methodology.

1. State Approaches to Assessment: Currently, some twenty-seven states have established identifiable "assessment programs" through Board resolution, executive directive, or statute (Ewell, Finney and Lenth 1990). Such initiatives are expected or planned in an additional dozen states over the next five years. State approaches to assessment differ widely, and include one or more of the following activities (Ewell and Boyer 1988):

- common statewide testing of the basic skills of incoming college freshmen (in place in Florida, New Jersey, Texas, and Tennessee).
- common statewide testing of college students for purposes of promotion (Florida, Georgia), to determine undergraduate program effectiveness (New Jersey, Tennessee; discontinued in South Dakota after 3 years), and/or to allocate resources to institutions (Tennessee).
- a requirement that each institution submit and receive approval for a local "assessment plan" to collect information on undergraduate outcomes consistent with institutional mission (in place in Arizona, Colorado, New Jersey, Virginia, South Dakota, Missouri, Hawaii, Georgia, Wisconsin, South Carolina, Washington, New York, Kansas and several other states). In some cases, as in California or Vermont, only one institutional sector is involved; in many cases, plan approval by a state governing or coordinating board is in some way linked to institutional funding.

States have also exhibited widely varying levels of investment in such programs. In many cases, no new dollars are associated with the mandate. In others, categorical grant

programs have been used to support "demonstration projects" at individual institutions. In a few cases, substantial new dollars have been invested at the state level (in New Jersey, \$850,000/year for college outcomes, \$500,000/year for basic skills assessment in 1988-89; in Virginia, institutional grants of \$10-12/FTE student at all public institutions in the 1998-90 biennium).

2. Institutional Approaches to Assessment: Partly in response to emerging state mandates--most of which assign responsibility for designing and carrying out assessment and evaluation activities to individual campuses--the past five years has also seen development of a considerable range of institutionally-based assessment efforts. Before 1984, the number of institutions possessing identifiable "assessment programs" was extremely small. Best current estimates indicate that up to 70 percent of American colleges and universities are establishing such programs--most of them in the past two or three years (for example, Hyman et al. 1988; El-Khawas 1989). Additional national survey data (for example, El-Khawas 1988) indicates widespread attention to the issue, and substantial expectations that assessment programs will be implemented in some form on virtually all public campuses.

In establishing the range (and cost) of such initiatives, it is important to stress that many existing institutional data-collection activities may be included among them. As a result, costs and benefits of explicitly establishing an "assessment program" must be calculated on the margin--after taking into account these already existing activities. Prior to the emergence of assessment as an issue, most colleges and universities collected considerable evaluative information about students through a variety of mechanisms (Ewell 1983). Most common are diagnostic testing to determine weaknesses in basic skills and occasional opinion surveys designed to determine student satisfaction with campus services. Most institutions also collect a range of demographic and course performance information about their students,

embodied in computerized student record systems. Generally lacking, however, and explicitly addressed by an identifiable institutional assessment program, are (a) information on the effectiveness of the curriculum as a whole as determined by changes in overall student knowledge and skill levels and (b) an institutional mechanism for integrating scattered information on institutional effectiveness and using this information systematically to improve instruction.

While details of emerging institutional assessment programs vary widely, most contain sufficient common features to allow meaningful comparison and to support limited generalizations about costs and benefits. Partly this is because most such programs have been modelled on a few widely quoted examples--most prominently for public institutions, Northeast Missouri State University and the University of Tennessee, Knoxville, and most prominently for private institutions, Alverno College. Partly this uniformity is also due to the fact that the majority of recently established programs were developed in response to state guidelines which strongly resemble one another--most notably in Virginia, Colorado, and New Jersey. Among the common emerging features of institutional assessment programs are the following (Ewell 1987):

- **An identified office or individual assigned explicit responsibility for coordinating the assessment function, for advising individual academic units in designing assessment and evaluation procedures, and for helping to interpret obtained results for decisionmaking.** Generally this office or individual is given an identifiable budget for the activity--a budget that often reflects reallocation of existing information functions as well as the funding required for new activities. Reporting lines vary considerably, but generally locate the function in close proximity to the institution's chief academic officer. While recruitment of an evaluation/assessment specialist to manage this function is occurring with

increasing frequency, the most frequent occurrence is reassignment of a faculty member in education or social science to manage the activity.

Basic skills testing in reading, writing, and computation for entering freshmen. Generally this is an existing activity, reassigned to or coordinated by the assessment function. At the same time when an explicit assessment program is adopted, changes in this function are often made to render it more systematic. These include,

- ensuring that all entering students are tested (often they are not, as they can "place out" of such testing by high school record or SAT/ACT performance-- neither of which provide a good guarantee that students in fact possess the required skills);
- use of common test instruments (often a range of instruments are used for different types of students with noncomparable characteristics and results);
- mandatory placement of students into remediation when deficiencies are identified (often students are "advised" to take certain remedial courses but in fact do not do so);
- retesting students as a condition for exiting remediation using the same tests or instruments that resulted in the initial determination of deficiency (often students so tested after "completing" remediation still cannot perform effectively enough to do college level work).

Such changes will generally considerably alter the character and effectiveness of basic skills testing programs, as shown most recently by Texas' Academic Skills Program (TASP) which mandates all four activities on a statewide basis.

- **Evaluation of the effectiveness of "general education," by looking at the development in students of such integrative skills as critical thinking and problem solving.** For most institutions, this is an entirely new activity, as the only existing information will be student course grades in general education courses. Common practices include,
 - administration of one or more standardized examinations to samples of students at the end of the sophomore or senior years to determine growth,
 - design and implementation of locally-designed examinations and exercises that require students to use knowledge in an integrated fashion to solve problems,
 - collection and analysis of existing examples of student work produced naturally throughout the curriculum in the form of "portfolio" or "secondary reading" techniques,
 - special surveys and course evaluations that tap student perceptions about the effectiveness of general education.

- **Evaluation of the effectiveness of instruction in the student's major field.** The degree to which this is a new activity depends upon the field of study. In most professional or occupational fields, existing certification, licensure, or accreditation procedures demand such assessment. In most traditional academic disciplines, no such procedures are typically in place. Consequently, establishing an explicit assessment program in this area generally entails,
 - ensuring that all fields undertake a periodic examination of this type (usually every five to seven years),

- ensuring that most of the knowledge and skills objectives that the program claims to develop are in fact assessed in some way,
- determining the success of graduates in employment and further study.

Often these activities are made a part of existing program evaluation processes. Generally they require departments and programs to work individually, with limited funding and technical assistance provided through the institution's assessment program.

- **Determination of student satisfaction and behavior through periodic surveys.** Depending upon past institutional practice, this can imply a reassignment or a wholly new activity. Generally responses are sought from both current and former students, and involve,
 - personal goals and goal fulfillment attained through attendance at the institution,
 - student reactions to and satisfactions with various aspects of the instruction and services provided,
 - self-reported development in identified areas of knowledge and skill, and for graduates and former students
 - current activities and an evaluation of the strengths/weaknesses of instruction received.

Often such surveys are centrally administered by assessment offices. In other cases, they administered by different units across the campus, but are coordinated and partly supported through the assessment function.

For the discussion of costs and benefits that follows, these functions will be assumed as the core of any institutional or state assessment program. Although the emphasis placed upon each of these activities may vary from institu-

tion to institution, they together represent a minimum set of assessment functions addressed by such programs.

2

Some Caveats on Estimating the Costs and Benefits of Assessment

In attempting a comprehensive review of the costs and benefits of institutional assessment programs, a number of initial observations and caveats are in order. Each places important limits on what can meaningfully be accomplished.

First, comprehensive programmatic assessment efforts of substantial duration are quite new. Fewer than a dozen institutions have operated such programs for a sufficient length of time for their consequences to become clear. The vast majority only initiated assessment activity within the last two or three years and are still in a planning, shakedown, or implementation mode. Consequently, their cost and payoff structures are different from those typical of fully established programs. Despite similarities in coverage and function, moreover, institutional assessment programs differ markedly in administrative organization. This means that they may also differ significantly in the way they account for invested

resources--particularly those having to do with reassigned personnel.

Second, because establishment of an explicit assessment function often involves a reassignment of existing activities, actually counting invested resources can be difficult. What is of interest is less the total cost of "assessment activity" than the net marginal investment in new assessment mechanisms established, plus the resource implications of reassigning old functions such as placement testing and student surveys. Moreover, because such existing functions are often scattered and inefficient, establishing a centralized coordinating mechanism can sometimes yield significant economies (Ewell and Lisensky 1988). As a result, past attempts to estimate the cost of institutional assessment programs have concentrated on establishing the *marginal* costs of such programs, rather than the total investment required (for example Ewell and Jones 1986, Lewis and Wasescha 1987).

Third, while the claimed benefits of institutional assessment are many, consistent valuation of these benefits is difficult. This situation is shared by most analyses of higher education's benefits: not only are dollar equivalents hard to come by, but estimates of benefit will vary considerably across different individuals with differing value structures and preferences (Bowen 1980). As a result, there have been few definitive studies of concrete rate-of-return for investments in instructional processes in colleges and universities beyond such relatively well-defined technical areas such as computer-assisted instruction. This situation considerably limits the applicability to assessment activities of formal "cost/benefit" techniques that compare the dollar values of investments with the dollar values of obtained results (Levin 1983).

Given this condition, past studies of the impact of particular educational innovations or reforms have generally concentrated on one of two alternatives. *Cost/effectiveness* analyses examine invested costs in the light of some identifiable common output or criterion measure for the activity in question. But with the exception of degree program comple-

tion, few common criterion measures exist for the outputs of higher education. Indeed, it is the very absence of such measures which in part inspires the call for outcomes assessment in the first place. The second alternative is to compare costs with "*utilities*"--identifiable benefits which may vary in value across beneficiaries depending upon their individual goals and preferences. Here the primary intent of analysis is to determine which alternatives provide which kinds of benefits to which beneficiaries at what cost. While such analyses do not provide unambiguous "cost/effectiveness ratios" upon which to decide what to do, they can nevertheless provide considerable guidance for policy. At the very least, they provide a coherent framework for thinking systematically about various available alternatives.

Fourth, like benefits, costs may also be subject to inconsistencies in valuation. In addition to identifiable fiscal and physical resources, the establishment of a new and controversial program may cost "political capital" or may cause considerable organizational friction over and above its observable cost. Focusing institutional and faculty attention narrowly on the implementation of assessment may preclude other opportunities or may inhibit instructional innovation or risk-taking. Like educational benefits, these effects are sufficiently ambiguous that converting them into estimated dollar equivalents may lose information. Beyond the issue of how much is invested there is that of who pays. Valuation of costs may vary significantly depending upon what particular parties-at-interest actually have at stake in the process.

Finally, the nature of assessment as a "management information" activity means that it is a special kind of investment--one not easily subject to the traditional rubrics of cost/benefit or cost/effectiveness analysis. Like all activities related to management, operating an assessment program involves the investment of real resources. These entail direct and observable costs to the institution. Benefits of information, however, are generally highly indirect. Literature on the "economics of information," for example, is founded on

management's use of information to make effective choices among posed alternatives—each of which itself has an associated stream of costs and benefits (for example, Huber 1980, Day 1978). If additional information can increase the probability of choosing a "profitable" alternative, investment in obtaining this information is justified up to the point where the margin of incremental "profit" disappears. But decisionmakers in higher education are rarely presented with such choices. Far more common is a situation where information—obtained at an invested cost—indicates that a particular deficiency is present and suggests some lines of attack toward addressing it. To address the deficiency, however, requires the investment of yet another increment of resources. Absent this second increment (or absent its being effective), prior investment in information may pay no dividends whatever. This is one reason why proponents of educational assessment and evaluation pay so much attention to explicit mechanisms for connecting evaluation information to concrete decision processes, and to the use of information. Without effective use, the "benefit" side of the analysis approaches zero.

Taken together, these caveats suggest treating the costs and benefits of institutional assessment activities in the following ways:

- **Costs are appropriately treated as programmatic costs**--that is, the costs associated with a formal, established, identifiable activity with sufficient organizational and budgetary identity that resources can be consistently accounted.
- **Costs are appropriately treated as marginal costs**--that is the difference in investment between establishing an assessment program of given content and structure over existing information-gathering and utilization costs previously being incurred by the institution.
- **Costs are appropriately treated as the costs of assessment itself, not the costs associated with actually addressing identified deficiencies**; moreover, the costs of assessment are a part of any wider rate-of-return cal-

culuation for the costs and benefits of any instructional improvement efforts in undergraduate education.

- **Some "costs," such as loss of access and reduction of risk-taking, are more appropriately treated as externalities than as direct dollar costs;** while it is in principle possible to obtain rough dollar equivalents for these negative effects, analysis is more meaningful if they are considered explicitly.
- **A few claimed benefits of assessment, while difficult to render consistently in dollar terms, are sufficiently comparable across situations to in principle support a cost/effectiveness estimate;** where obtained results are comparable, for example in claimed increases in student persistence and graduation rates, cost/effectiveness calculations are appropriate.
- **Most benefits of assessment are appropriately treated as "utilities" to particular constituents in the process,** each of which may, (a) value obtained outcomes differently, and (b) pay different shares in the total investment.

These properties define the limits for the discussion that follows.

3

Identifying Benefits, Costs, and Parties-at-Interest

Benefits of assessment have been claimed by proponents in bewildering variety. These range from improvements in specific cognitive outcomes for individual learners to broad societal benefits achieved by greater accountability to the taxpaying public. Similarly, "costs" of assessment have been raised by critics that encompass losses of opportunity for individual students to politicization of higher education that distracts the enterprise from its fundamental ends. In order to make sense of these claims in determining the wisdom of embarking on various forms of assessment, an analytical framework encompassing the majority of these claims is required.

Figure 1 provides the foundation for such a framework by arraying benefits and costs against a range of constituencies or "parties-at-interest." Benefits are roughly presented in terms of the degree to which they provide direct or indirect payoffs to the identified party. Costs are noted as

Figure 1

Benefits, Costs, and Externalities of Institutional Assessment

Parties-at-Interest	Benefits	Direct Costs	Externalities
Individual Students	- Increases in knowledge/skill - Increases in graduation/persistence - Increased credibility of degree - Better information for college choice	- Testing Fees	- Burdens of additional testing - Loss of access/choice of classes/programs - Loss of access due to biases and inequities
Faculty	- Targeted teaching - Better ability to design examinations		- Burdens of designing and administering instruments - Perceived violations of "academic freedom"
Institutions/Programs	- Improved curriculum structure and sequence - Improved planning/resource allocation - Increased faculty time committed to teaching - Enhanced ability to acquire resources	- Full program cost, if unsupported	- Narrowed curriculum/"teaching to the test" - Opportunity costs of faculty time - Increased administrative "overhead"
External Constituents	- Enhanced employee skills - o general - o job-related - Better employee attitudes toward work		
General Public	- Assurance that tax dollars are well spent - Increases in general welfare	- Additional tax dollars to support total or partial cost of program	

either direct dollar consequences or as "externalities" for which calculation of dollar equivalents are for the most part inappropriate. Parties-at-interest in this scheme are identified as follows:

- **Individual students** are individuals directly involved in higher education as "consumers," including currently enrolled students, former students, and potential students.
- **Faculty** are members of higher education faculties currently or potentially involved in providing undergraduate instruction.
- **Institutions/Programs** are colleges and universities as organizational entities, or subunits within institutions that can function relatively autonomously.
- **External constituents** are organizations external to higher education that employ the graduates of colleges and universities and that stand to gain or lose because of skills or deficiencies possessed by graduates--either in general or in particular programs (these may include business/industrial employers, local governments, social service agencies, etc.)
- **The public** are members of the general public (either as taxpayers or as the beneficiaries of improvements in general public welfare due to an educated public) and their elected representatives.

Each of these parties-at-interest may benefit or bear costs in different proportion depending upon the types of programs proposed.

This framework is intended to serve two distinct analytical purposes. First, it can serve as a guide for systematically summarizing existing arguments and evidence about the actual impacts of institutional assessment programs. Reviewing this body of material cell by cell for different parties-at-interest will constitute the balance of this section. Second, the framework can be used to compare the benefits and costs of different proposed alternatives to particular constituent

cies--for example a common state-mandated basic skills placement examination against the establishment of incentives for institutions to create their own programs or the use of standardized tests or "curriculum-embedded" assessment alternatives for institutions. While such an analysis does not provide a definitive judgment about relative program cost/effectiveness, it will at least enable policymakers at the institutional or state level to select the most promising alternatives. Several such programmatic trade-offs will be considered in a following section.

1. Benefits of Assessment by Identified Parties-at-Interest: Benefits of assessment have been claimed and documented in a variety of areas. Evidence for each will be briefly considered by potential beneficiary groups as outlined in Figure 1.

a. **Individual Students:** Among the claimed benefits of establishing assessment programs for individual students are the following:

- **Documentable increases in knowledge and skills.** Direct increases in student knowledge and skills are held to be a product of both the individual feedback on performance provided by testing, and of improved ability to target teaching on identified weaknesses in student abilities. Evidence from both state and institutional testing programs is fragmentary, but indicates that modest gains are partially attributable to assessment processes. In most cases, however, these gains are confined to so-called "basic skills" areas--reading, writing and computation. In Florida, for example, demonstrable increases in student writing ability have been associated with the state's College Level Academic Skills Program (CLASP) which involves testing sophomores in basic skills as a condition for advancement (Clereszko 1987; PEPC 1989). At institutions such as Northeast Missouri State University where repeated administra-

tion of a test instrument can document the "value added" of instruction, percentage gains in English subscores as measured by the ACT Assessment Examination rose from 4.8% in 1978 to 10.6% in 1983; this period saw heavy investment by the university in enhancing assessment processes and in using the results to improve curriculum (McClain and Krueger 1985). In both cases, benefits are somewhat offset by the fact that the test-taking populations became more able due to selection biases: in Florida, less able students were deterred from taking the examination while at Northeast Missouri admissions standards rose in the same period. Similarly, it was not assessment alone that caused any increases but rather the combination of assessment and appropriate curricular action. If used to inform curricular intervention, however, modest gains in overall levels of basic skills can generally be expected.

Increases in persistence and graduation rates due to improved advisement, placement and retention efforts. Student assessment programs have also been widely associated with gains in student persistence and graduation. This is due primarily to two different mechanisms. At the level of individual courses, coupling assessment of prerequisite skills with course registration policies can result in significant increases in success rates. At North Carolina State University, for example, directed placement into selected mathematics and pre-engineering courses resulted in 30-40% increases in course passage rates overall, and over 70% increases for minority students (Ewell 1984b). Second, institution-level assessment results--particularly the results of student attitudinal and perception surveys--can result in documentable increases in overall rates of student retention and degree completion. At Northeast Missouri, for example, five-year degree completion rates have risen approximately

15% since initiation of comprehensive assessment (Northeast Missouri State University 1987). More typical, however, are the experiences of such institutions as Towson State University, Maryland and other members of two national student outcomes assessment projects in the early 1980's that increased retention rates by 8-10% overall in three years (Ewell 1984b; Kemerer, Baldrige and Green 1982). Increased retention rates, of course, are of individual benefit in raising a given student's overall chances of obtaining a degree, and therefore of receiving the payoffs associated with degree completion.

- **Increased credibility of the degree obtained.** Another claimed benefit of assessment is public demonstration of the actual "learning content" of a baccalaureate degree (McClain 1984). Given considerable evidence of wide variations in student ability among the products of different institutions, one claimed objective of student assessment is to provide concrete evidence of what students know and can do upon graduation. The claimed individual payoff in this case is increased competitiveness of graduates in the employment market. No concrete evidence currently exists to support this proposition beyond the generally better placement rates experienced by graduates of some institutions participating in assessment. Much of this success, however, could equally be attributed to the fact that these institutions have simultaneously raised their admissions standards.
- **Improved information for making initial college choices.** Rather than affecting currently enrolled students, these benefits are held to accrue to potential college students and their parents. Publicly available information on attainment levels, success rates, and the placement experiences of graduates may

enable more informed consumer choices about which college or university to attend. The perceived success of graduates has traditionally been a major drawing card for "selective" institutions (Zemsky and Oedel 1983). Evidence that assessment results can to some extent offset entering student ability in the perceived attractiveness of an institution is provided by the increased application pools at such institutions as Alverno College, Kings College, and Northeast Missouri where assessment programs have been in place for a number of years. As above, however, these increases have been accompanied by highly visible innovations in curriculum in addition to assessment.

b. **Faculty:** At the level of individual faculty members, few concrete benefits are claimed through assessment. Two, however, are of sufficient prominence to note below:

- **Increases in the ability to target teaching on the identified needs of members of a given classroom.** Faculty members at institutions such as Kean College, New Jersey and Kings College, Pennsylvania report that pre-assessments of student knowledge and ability significantly improve their ability to tailor instructional material to appropriate levels (for example, Farmer 1988). This allows important deficiencies in prerequisite knowledge to be quickly identified and dealt with before the term is too far advanced. It also allows adjustment in the timing and coverage of class content at an early point in the term.
- **Increases in faculty ability to design and administer classroom tests.** While the basic intent of comprehensive outcomes assessment programs is to examine performance across individual classes and students, significant numbers of faculty members at

all types in institutions report that the engagement in the design of assessment has improved their ability to design better tests for their own use (for example, Calhoun 1986; Banta 1985; Banta and Moffett 1987). This experience has been a particularly apparent effect of implementing assessment in the major field or department at research universities. Similar impacts have been reported with less frequency in general education at comprehensive colleges and liberal arts colleges (Curry and Hager 1987; Farmer 1988). The key here, however, is that faculty must have been actively involved in designing and administering the assessment program, though there is some evidence that participating in commercial tests such as the ACT-COMP can also result in modest faculty development benefits (Banta 1986; Forrest 1982).

c. **Institutions/Programs:** By far the greatest claims of positive benefit for systematic assessment have been at the institutional or program level. Among them are the following:

- **Improvements in the sequencing and structure of undergraduate curricula.** Most institutions engaging in comprehensive assessment report significant early curricular changes as a result. Many of these changes, it is interesting to note, appear to have occurred as a result of *designing* the assessment (Banta 1986; Ewell 1984b). In several reported cases, curricular change pre-dated actual data collection. Documented curricular changes resulting from assessment activities have been of three distinct kinds. First, there have been notable changes in the sequence of particular courses making up particular curricula. For example, at Mt. Hood Community College, course order in several technology programs was reordered--yielding increases of 10-12% in degree completion rates (Ewell 1985); at the University of Tennessee, Knoxville, introductory

courses in several major fields were made mandatory (Banta and Moffett 1987). Second, assessment programs have in several cases led to identification and elimination of "soft-track" courses: at Northeast Missouri, elimination of such courses in mathematics and requiring students to take more solid math courses resulted in visible gains in sophomore-level math test scores (McClain and Krueger 1985). Finally, assessment results have led to the introduction of new courses to address obvious curricular deficiencies: a good example is provided by the University of Tennessee, Knoxville where surveys of current and former students in Business indicated the need for courses in Business Law (Banta and Moffett 1987). In each of these cases, of course, the demonstrated link is between assessment and changes in the curriculum--changes that are presumed to benefit students in the form of increases in knowledge and skills. No direct evidence of such increases have as yet been demonstrated.

- **Improved institutional planning and resource allocation.** A second set of institutional benefits concerns the reported utility of assessment results in making better administrative decisions--particularly those involving program continuation, investment, and disinvestment. For these benefits to occur, there must be a strong linkage between assessment information and a regular and systematic process of program evaluation or review. At institutions where such linkages are present, both institutional administrators and program/department chairs report that better decisions are made about resource allocation (Ewell 1984b). Consistent with overall mission and the results of strategic planning, investments are targeted toward identified deficiencies in curriculum in part discovered through assessment activities. Similar experiences have been reported by top administrators at the University of Tennessee, Knox-

ville, where assessment results are also visibly used in the program review process (Banta and Fisher 1984). In some reported cases, additional assessment information has determined a program continuation decision which would otherwise have been different. At St. Petersburg Junior College, for example, information about post-graduate success and favorable employer ratings for graduates changed a Board decision about continuing an "inefficient" program in Social Work (Ewell 1985).

- **Increases in faculty time committed to teaching.** A number of observers have reported gains in faculty "time on task" expended in support of undergraduate instruction as a result of planning and implementing comprehensive assessment activities. Such reports have been particularly frequent with regard to general education--an area which often claims last priority in allocations of faculty time and attention. In such cases, faculty report talking more with their colleagues about general education issues, discussing particular course content with greater frequency, and spending more time preparing for classes and talking with students. Concrete evidence of this effect is scanty, however, and relies only on unsystematic self-reports from faculty and departmental administrators.
- **Enhanced ability for institutions to obtain additional resources.** Heightened interest in assessment *per se* has, of course, enhanced the willingness of both public and private funders to provide resources to directly support such activities. Those institutions that have instituted programs early have generally been able to garner such funding--often in substantial amounts. More significantly, institutions that have collected assessment results over time have been able to use this information to make a better

case for budgetary requests from state governments and for special program requests from foundations and other funders. In Missouri, for example, Northeast Missouri has consistently supported special appropriation requests from the legislature with a range of concrete assessment information--most recently in a library enhancement request (Krueger and Heisserer 1987). Interviews with state legislators in Missouri indicate that the availability of such information was a significant contributor to the decision to fund the institution's request--both because it directly supported action and because it provided indirect evidence of good management practice (Ewell and Boyer 1988). In Tennessee, legislators reported that the existence of the state's "performance funding" program was important in obtaining increases in funding for higher education as a whole (Ewell 1990). Similarly, Kings College, Pennsylvania has used its assessment program to obtain successive curriculum improvement grants from several national and local foundations (Farmer 1988).

d. **External Constituents of Higher Education:** A number of benefits of assessment are claimed for agencies and institutions that employ higher education's graduates. Few are to date substantiated by any direct evidence. They include the following:

- **Increased assurance that potential employees possess requisite basic and higher order skills.** Many institutions that employ college and university graduates have over the years been forced to design and implement their own testing programs to determine the reading, writing, and computational skills of potential employees. Largely they report implementing such programs because possession of a baccalaureate degree can no longer be taken as sufficient evidence that individuals possess required skills. Recently, for example, the US military ceased

to accept a college degree as the sole source of evidence about basic skills and is requiring special testing to determine skill levels among officer candidates (Ewell 1984a). Credible higher education assessment would obviate the need for such special testing programs, resulting in significant cost savings for employers.

- **Increased assurance that potential employees who are graduates of specific job-related programs possess the special skills necessary to perform effectively.** This benefit parallels the above, but with respect to specific, identifiable, job-related skills. Institutions that have instituted end-of-program comprehensive examinations, practicals, or projects in which job-related skills can be demonstrated in a real or simulated job setting have reported that potential employers are more likely to hire their graduates. Results of this kind have been particularly apparent in Nursing and other health professional training programs. As above, demonstration of skill before employment obviates the need for employers to "remediate" deficiencies after employment, again resulting in a potential cost savings.
- **Increased assurance that potential employees possess appropriate attitudes toward work.** Increasingly, employers report that they are concerned about whether otherwise well-trained college and university graduates possess important job-related attitudes such as motivation, persistence, and interpersonal values that support teamwork. These concerns have been instrumental in the efforts of some professional program areas to explicitly stress the development and assessment of such attitudes while enrolled--for example the American Association of Collegiate Schools of Business. To the extent that

these efforts are successful, they are presumed to represent a payoff to employers in the form of a more productive workforce (e.g., Bowen 1977).

e. **The General Public:** Claimed benefits of assessment for the public at large rest largely on arguments of improved accountability. Specifically, assessment programs are held to be related to the following:

- **Increased assurance that public tax dollars allocated to higher education are appropriately invested.** Much of the argument for assessment from public officials rests on the proposition that the public has a right to know the effects of invested resources. Absent specific performance information, public accountability at least demands evidence of effective and prudent management of public enterprises. Assessment programs are argued on both grounds. Indirect evidence of the efficacy of assessment programs to fulfill the function is provided by the testimony of elected officials who report strong support of such programs for purposes of public accountability (Ewell 1990).
- **Increases in general public welfare associated with other identified benefits.** Many claims have historically been made about the general benefits of an educated citizenry. They include overall increases in social productivity, cultural and personal benefits, and avoidance of such negative social consequences as crime and social disruption (Bowen 1977). The majority of such benefits can be seen as "secondary effects" of one or more identified benefits above.

2. **Dollar Costs of Assessment:** Despite the fact that assessment is relatively new as a distinct activity, its direct dollar costs can be more reasonably estimated than its claimed benefits. Partly this is because many associated costs are incurred early, and can consequently be observed more readi-

ly. Partly it is because the basic ingredients of direct cost required to operate assessment programs are comparatively well defined. As a result, several past attempts have been made to establish the direct costs of such programs (Ewell and Jones 1986; Conrad and Wilson 1985; Bowen 1985; Lewis and Wasescha 1987). It is important to note that these studies have themselves been used by several state governments (for example, Virginia and New Jersey) to establish guidelines for funding institutional assessment programs. Consequently, actual available direct cost data has tended to converge in recent years: following Bowen's analysis of expenditures in higher education (1980), the amount of funding provided itself tends to determine "costs," because institutions spend all of what they are given. Assessment programs are no less subject to this observation than are any of the other things that institutions do.

Any discussion of assessment costs involves two distinct topics. First, it is necessary to actually estimate the direct costs incurred--based on both the actual cost components of an assessment program and on an analysis of what institutions actually spend. Second, it is necessary to determine who pays these costs.

a. Cost Estimates for Assessment: Two methods are generally used for arriving at estimates of program costs. The most frequent is "component costing" in which an estimate of total program cost is constructed by determining the costs associated with each of the program's requisite elements. A second method--"statistical costing"--involves analyzing a number of existing programs and calculating what is actually spent on program activities. Both methods have been used to estimate the operating costs of institutional assessment programs. Due to small numbers of existing programs, however, statistical methods have to date been used only to confirm the estimates derived from component costing.

In implementing assessment programs, institutions incur costs in four areas. They include the following:

- **Instrument costs.** Various cognitive exercises and student surveys constitute the technical basis for any assessment data gathering effort. Before they can be fielded, such instruments must be developed or obtained. If they are developed locally, costs are incurred by faculty and measurement specialists. After initial development, such instruments can be produced on a regular basis--generally at lower cost than comparable commercial instruments. Institutions that have developed their own examinations have usually treated their construction as a departmental activity. Common practice, for example, is to provide each department with grants of \$2000-3000 to cover the direct costs of test construction. This practice tends to bury many test-making expenses in ongoing departmental administrative budgets. If the full cost of such activity were calculated, it would undoubtedly be higher than budgeted amounts. Commercial tests and surveys are usually purchased on a per unit basis. Costs range from a low of \$7/instrument for such widely administered tests as the ACT Assessment to \$75-\$200/instrument for specialized field examinations. Costs for commercial cognitive instruments generally include analysis and scoring as well as acquisition of the instrument itself. Commercial surveys are also generally purchased on a per unit basis, with costs ranging from \$0.25/survey to approximately \$1/survey. When analysis services are also used, these costs average \$3-\$5/completed survey. In most cases, minimum orders or service charges of approximately \$100 apply.
- **Administration costs.** Once acquired, tests and surveys must be administered to students. At some institutions, existing testing centers established for placement or diagnostic testing may bear some of this burden. In most cases, however, the number of instrument to be administered will require re-

sources beyond those available in existing testing centers. At minimum, test administration requires personnel to serve as proctors. Moreover, special equipment such as projectors and tape recorders may be required for some types of examinations (for example, the ACT-COMP). Survey questionnaires will either be administered in class or by mail. In the first case, direct costs of administration will be minimal--though some personnel costs will be incurred. In the second case, experience indicates incurred costs of \$2-\$3/completed instrument should be budgeted--an estimate that includes more than one follow-up mailing, possible telephone follow-up, and the costs of monitoring the follow-up process.

- **Analysis costs.** As noted above, commercial cognitive tests generally include analysis and processing expenses in the price of the instrument. Scoring and analytical services that cover the costs of data entry, computer analysis, and production of a simple summary report are also available for most commercial surveys. To be of maximum use, however, obtained data will probably be analyzed locally, requiring additional personnel and data processing costs. This will be particularly true for locally-designed assessments, where data coding schemes and analyses must be designed from scratch. In the initial stages of such a process, considerable care must be taken to develop error-checking procedures and methods for handling incomplete or contradictory information. Once such procedures are put in place, however, ongoing costs for analysis will be minimal--principally involving personnel and computer time.
- **Coordination costs.** Most institutional assessment programs involve establishment of a central function to coordinate a range of data collection activities and to provide technical assistance to departments and

units in designing, implementing, and interpreting the results of local assessments. Costs associated with establishing an office or function of this kind include those for new professional and support staff, space to house these personnel, and ongoing operating expenses. Established offices of this kind range from .5-2.0 FTE professional staff, depending upon institutional size, commitment, and the complexity of the program. In many cases, existing personnel are reassigned to provide staffing for an assessment center. Faculty with appropriate research backgrounds in the social or behavioral sciences, or testing/institutional research professionals may be taken from their current assignments and given responsibility for coordinating institution-wide assessment activities, designing instruments, or for analyzing and interpreting test and survey results. In such cases, the relevant cost consideration is that of *replacing* the reallocated staff member in his or her original function.

Based on these cost components, most past estimates of appropriate component costs for institutional assessment range from \$7-\$10/FTE student. Such estimates must be treated with extreme caution, however, as appropriate programs will vary greatly based upon institutional mission, the number and types of instructional programs offered, and characteristics of the student body. Estimates will also vary greatly depending upon whether and how sampling strategies are used and the degree to which the institution has already developed appropriate entry testing and survey follow-up procedures.

Statistical estimates of assessment costs based upon actual incurred costs at established institutions yield a somewhat higher estimate on a per-student basis. Program budgets for Northeast Missouri and the University of Tennessee, Knoxville--both of which have operated identifiable assessment programs for over five years--average a bit over \$10/FTE student annually.

Emerging institutional programs, for example those at James Madison University and Kean College, are currently incurring costs of about \$12- \$15/FTE student each year. In such cases, however, higher costs are expected because considerable instrument development is being undertaken in the program's first years. Institutional budgets for assessment submitted by all public institutions in Virginia in 1987 documented expected costs ranging from about \$8/FTE to \$35/FTE. Funds actually allocated by the Virginia State Council for Higher Education for institutional assessment activity for next year averaged \$12/FTE across institutions.

b. Who Pays?: While the direct dollar costs of institutional assessment can be estimated with reasonable confidence within a range of \$7-12/FTE student, the question of who bears these costs can vary considerably. Different methods of allocating costs among the principal parties-at-interest will, of course, heavily determine their net payoff as a result of the activity. Existing institutional practice has involved direct dollar costs incurred by one or more of the following:

- **Individual students.** Some institutions pass on the costs of assessment directly to individual students in the form of a testing fee. South Dakota's statewide assessment program, for example, is funded by a per student charge of \$7/student, which covers all direct dollar costs of acquiring and scoring mandated instruments (Boyer and Ewell 1988). Other individual institutions levy testing fees ranging from \$7 to \$9 per student. Generally, the case for charging students is made on the basis of the direct benefits that students receive from the operation of a testing or assessment program.
- **Faculty.** While individual faculty members may incur considerable opportunity costs and may invest considerable time through their participation in as-

assessment, they do not generally bear any dollar cost. Indeed, if the institution chooses to invest heavily in the development of local instruments, faculty may receive direct dollar payments for their involvement. Generally, however, these are in lieu of teaching and do not represent an increment of total income.

- **Programs/Institutions.** Where additional dollar support for assessment is not provided to institutions or programs for engaging in assessment--either through direct allocation or through a student fee structure--the cost of assessment must be directly borne through reallocation. In most states, for example, the total cost of mandated institutional assessment must be supported by institutions themselves, as no new resources have been provided (Ewell, Finney and Lenth 1990). Even in cases where some additional support is provided, it is often insufficient to cover the complete cost of the activity. Within institutions, for example, support provided to individual programs or departments for developing and piloting a major field examination is approximately \$2000-\$3000. Given actual incurred costs, this amount may cover only half to two-thirds of the requirement.
- **The public.** To the extent that direct increments of dollar cost are not covered by student fees, they are ultimately incurred by taxpayers. On a per-taxpayer basis, however, such additional costs will be small compared to total payments for higher education. New Jersey's statewide College Outcomes Evaluation Project--currently the largest such statewide developmental effort--was budgeted at \$850,000/year in 1988-89. Virginia provided institutions with a total of \$4.4 million for assessment in the 1988-90 biennium. Such investments are well within public program evaluation guidelines that call for the invest-

ment of 1-2% of total budget in evaluation activities, and well below typical corporate investments of 5-8% in research and development activities (Bowen 1977; Lewis and Wasescha 1987).

3. Some "Externalities" of Assessment: Not all identifiable negative consequences of assessment can be appropriately treated as dollar costs. Some represent negative individual or social consequences that could be costed out, but for analytical purposes are more beneficially identified individually. Examples include limits on access to higher education that disproportionately affect members of minority groups. Others represent demonstrated consequences of assessment that may be negatively valued by some constituents but not so by others, or that represent truly non-quantifiable results. Examples include narrowed choices of programs or courses within curricula on the part of students, or limits on the freedom of individual faculty members to teach what they please as they please. Each of these identified externalities is treated by its associated party-at-interest below.

a. Individual Students: Among the negative consequences experienced by individual students attributable to assessment are the following:

- **Increased burdens associated with testing external to the classroom.** In cases where assessment is not built into the curriculum and involves additional testing or surveys, students pay a cost in lost time.
- This cost is particularly apparent where assessment results are used solely to inform curricular or program decisionmaking and thus entail no individual consequences or benefits for students (Banta 1988). The extent of this cost can be estimated in two ways. First, the amount of time committed can be directly estimated: for most institutional assessment programs, time commitments for students will average three to four additional hours per

year. This result could be costed out at prevailing student wage rates to obtain one estimate of lost benefits to students. Second, some institutions have attempted to pay students directly for participation in assessment: quoted amounts range from \$10-20 for a two or three hour testing session, generally held on an evening or weekend. It is important to note, however, that few students consider the reimbursement worth the effort. Indeed, widespread institutional experience with the difficulties of motivating students to commit time to assessment absent a direct evaluative consequence indicates this problem to be considerable for assessment programs that provide programmatic information only.

Loss of access and choice with respect to desired courses or programs. Two kinds of negative consequences for students have been reported. First, if assessment results are used to restrict registration in particular courses and programs, individual students may be barred from attending. If the primary consequence is to give students the opportunity to remediate deficiencies so that they may subsequently successfully complete desired courses, this loss is justified--although students may suffer time delays in completing their programs. But if a consequence is to deny access absolutely, a significant cost may be borne--particularly for members of minority groups who may perform poorly on formal assessments for a number of historical reasons. Second, if results are used to inform curricular decisionmaking, an important consequence may be to change the structure of curricula. This may result in elimination of preferred courses, or making more uniform the sequence in which particular courses are offered. Both limit choice on the part of individual students as "consumers." Both may also imply that some students will take longer to complete their coursework. In both respects, moreover, assessment tends to result in cur-

ricular changes that limit an individual student's "right to fail."

- **Inappropriate limits on access due to embedded biases and inequities in assessment procedures.** If assessment procedures are used for "gatekeeping"—that is to deny individual students access to particular courses or programs, or to higher education generally—particular negative consequences may be experienced by members of identifiable student groups. Three types of students are generally mentioned as negatively affected. First, experience has shown that members of minority groups may be adversely affected by testing, due to both cultural biases in testing procedures and to historic deprivations in educational opportunity. Where such inequities are apparent, students may not only be directly affected but may also withdraw from programs because of anticipated negative impacts. In Florida, for example, the CLASP program has resulted in a more than 50% decline in degree-seekers in community college AA Transfer programs (Ciereszko 1987; Losak and Wright 1983). Second, assessment procedures may not reflect important differences in learning style among students, and may consequently not appropriately classify them as deficient in certain skills. Finally, most assessment instruments, regardless of their actual content, are in fact predicated on a test-taker's language ability—particularly the ability to read English (Adelman 1988). This may imply disproportionate negative consequences for those with low verbal skills but with otherwise adequate abilities, or for those whose native language is not English.

b. **Faculty Members:** Negative consequences of assessment identified for individual faculty members are as follows:

- **Increased burdens involved in designing assessment instruments, administering such instruments, and interpreting results.** Emerging experience indicates that significant investments of faculty time are involved in designing appropriate assessment activities. Commitments are especially heavy when faculty-designed instruments are used. For institutions that have accounted for such time, estimates of this commitment approximate one quarter of a full-time faculty equivalent term teaching load to develop a local departmental examination or assessment procedure. Institutions such as Kean College, New Jersey, the College of William and Mary, Virginia, or Kings College, Pennsylvania that rely heavily on faculty scoring of local instruments report heavy time commitments in assessment--approximately eight additional hours per term to grade such instruments. In both cases, however, it is arguable that this investment is part of regular teaching assignments because it is also part of the student grading procedure. Indeed, at an institution like Alverno College, distinctions between "assessment" and "teaching" have no meaning; both are part of the established curriculum. For other institutions, however, assessment may involve an added time commitment on the part of faculty that is seen as essentially unrelated to classroom instruction. This is more likely the case where commercial instruments are used.
- **Perceived violations of academic freedom.** Assessment involves establishing inherent limits on what a faculty member can do in his or her classroom. As noted above, one impact is to change curriculum structure and content to ensure greater continuity among courses (and particularly across different sections of the same course). Some faculty may see this as a threat to their individual autonomy as reflected in the concept of academic freedom. It is important

to note that no legally sustainable case for violations of academic freedom has historically been heard on this basis, and that the concept refers only to a faculty member's right to express personal opinions in the classroom; no case can be legally made for a faculty member not teaching assigned material, or for not teaching effectively. Nevertheless, confusions over the precise meaning of "academic freedom" in the minds of some faculty often cause notable and important political opposition to assessment.

c. **Institutions/Programs:** Negative consequences at the institution or program level associated with establishing assessment programs have been noted in several areas. They include the following:

- **Excessive limitations on curriculum content and "teaching to the test."** One claimed benefit of assessment lies in its impact on curriculum--particularly in areas of structure, sequencing and uniform content. Where this process is deemed excessive, it is also seen as a negative impact. If assessment results are taken too seriously in determining what should be taught, there is a fear that only "measurable" content will be included. If results have significant consequences for the fates of individual students, moreover, incentives are strong to tailor instruction to the examination rather than viewing performance on the examination as representative of a broader range of student knowledge and abilities. Evidence from Florida indicates that the CLASP program has had a recognizable impact on the teaching of freshman courses in English and Math in Florida public institutions. Higher pass rates on the examinations may be the result, but some faculty fear that areas not assessed by the examination are as a result being crowded out of the curriculum.

- **"Opportunity costs" of substantial investments of faculty time.** Time spent by faculty in developing assessment instruments, administering them, and interpreting the results have already been noted as potential negative consequences for individual faculty members. In addition, the institution or program must consider the alternative uses of faculty time that such investments preclude. Generally these are cited in terms of lost time for research and public service activities. While no data is available to estimate the impact of such diverted effort, faculty members at the University of Tennessee, Knoxville--the only public research institution with substantial experience with student assessment--have been reluctant to invest substantially in assessment programs for more than a three-year period. Moreover, where assessment is external to the classroom and also involves a faculty time commitment, less time may be available for actual instruction. In several institutions where commercial examinations are used, for example, one classroom period per term is used to administer the examination--a diversion of from 2-4% of overall instructional time.
- **Increases in administrative "overhead" associated with creating a new function.** If assessment is undertaken as a distinct and visible activity, as mandated by many states, it may require establishment of an explicit office and associated reporting structure. This may entail costs and externalities beyond those associated with the tangible assets invested in the program. Examples of such externalities include increases in administrative complexity due to establishment of an additional office or function, difficulties of coordination with other units assigned to collect information about aspects of institutional performance, and possible duplicative reporting burdens on academic units (Ewell 1988). While such additional costs can be minimized through a com-

prehensive approach to institutional management information and planning functions, emerging experience has shown that incurring such costs is likely—particularly in the early stages of establishing an institutional assessment program.

4

Applying the Framework to Some Policy Choices

As emphasized throughout the prior discussion, derivation of a single cost/benefit estimate for all assessment programs is both impossible and inappropriate. Difficulties in consistently specifying costs and benefits in dollar terms, differences among proposed "assessment" programs in different institutional settings, and differences in the ways key participants value similar outcomes conspire against such a simple answer. What is possible is to use identifiable costs, benefits, and externalities to help sort through proposed policy alternatives. Two pairs of such alternatives are briefly discussed in this section--one for institutions and one for states--using the proposed framework as a guide.

Two Institutional Policy Alternatives

Assessment Using Available Instruments

One popular early option for institutions electing to embark on assessment is to found the program on existing standardized tests and surveys, most of which are commercially available. This approach has major virtues of proven technique and available normative data to inform comparisons, though it also has many drawbacks. The best known current example of this approach is Northeast Missouri State University (McClain and Krueger 1985); Tennessee's statewide "performance funding" program involves establishment of institutional programs with similar characteristics (Banta 1986). Among the institutions currently embarking upon assessment in response to state mandate, somewhere between one third and one half initially adopt such an approach. Its basic features include, a) administration to selected samples of students commercially available general education examinations such as the ACT-COMP, ACT-CAAP, or the ETS Academic Profile, b) administration to graduating seniors the GRE or ETS Major Field examination that corresponds to their major or administration of a relevant professional licensing or professional school admissions test and, c) administration to samples of current students, graduating seniors, and/or recent alumni an available survey such as the ACT Evaluation Survey Service (ESS), the NCHEMS/College Board Student Outcomes Information Service (SOIS), or the UCLA College Student Experiences Questionnaire (CSEQ).

Figure 2 presents major areas of benefit and cost for this alternative. Using the categories of benefit, cost, and externality previously discussed for each party-at-interest, the figure roughly indicates the presence and intensity of each. Particularly notable are the following:

Figure 2

Benefits, Costs, and Externalities of Institutional Assessment: Institutional Programs

Case 1: Available Standardized Tests and Surveys

Parties-at-Interest		Benefits		Direct Costs		Externalities
Individual Students	o	- Increases in knowledge/skill	-	- Testing Fees	- -	- Burdens of additional testing
	o	- Increases in graduation/persistence			-	- Loss of access/choice of classes/programs
	o	- Increased credibility of degree			-	- Loss of access due to biases and inequities
	++	- Better information for college choice				
Faculty	+/-	- Targeted teaching			o	- Burdens of designing and administering instruments
	o	- Better ability to design examinations			-	- Perceived violations of "academic freedom"
Institutions/Programs	+/-	- Improved curriculum structure and sequence	-	- Full program cost, if unsupported	-	- Narrowed curriculum/ "teaching to the test"
	o	- Improved planning/resource allocation			o	- Opportunity costs of faculty time
	o	- Increased faculty time committed to teaching			-	- Increased administrative "overhead"
	++	- Enhanced ability to acquire resources				
External Constituents	o	- Enhanced employee skills • general • job-related				
	o	- Better employee attitudes toward work				
General Public	+	- Assurance that tax dollars are well spent	-	- Additional tax dollars to support total or partial cost of program		
	o	- Increases in general welfare				

- **Benefits.** Benefits of this alternative are due primarily to the perceived external credibility provided by the use of standardized instruments. Partly this is because instruments available through "third party" testing agencies such as the Educational Testing Service (ETS) and the American College Testing Program (ACT) are removed from direct institutional interest and can therefore be presumed to be more "objective." Partly it is due to the ability of standardized tests and surveys to provide a basis for evaluating comparative performance. For individual students, primary benefits are therefore in the area of better "consumer information" for college choice; Northeast Missouri, for example, was able to attract an increasingly more talented entering student body partly on the basis of the credibility provided by its assessment program. For faculty and institutions/programs, benefits are more mixed. Changes in curriculum and "targeted teaching" have been widely reported in Florida institutions as a result of "rising junior" examinations, but these responses are seen as both positive and negative depending upon the observer's value position. Clearly, however, the credibility of such a program can strongly benefit an institution in the acquisition of resources. Institutions such as Northeast Missouri that have adopted this approach can point to an impressive record of addition-to-base funding from state authorities.
- **Costs.** Direct dollar costs for a testing program of this kind have been estimated in the range of \$7/student (Ewell and Jones 1985). This estimate assumes the use of "average cost" standardized instruments and testing samples of students rather than entire populations. In most cases, these costs have been covered through available institutional contingency funds (or, as in the case of Tennessee, are drawn from revenues "earned" through favorable test performance). In some cases, student fees are levied (in South Dakota institutions, for example, \$15/student in 1989-90).

- **Externalities.** Primary externalities of this approach fall on individual students because in most cases standardized testing involves the sacrifice of out-of-class time and results in information which is of limited utility in enhancing individual student learning. Indeed, many obtained scores are not individually valid as the instruments are designed to produce group scores. At the same time, if scores are valid and used, students may lose access to particular courses or their progress impaired because of their performance. In such cases as well, there will likely be allegations of test bias if minority groups experience substantial adverse impact. These two effects, however, will occur only if the testing program functions as a "gateway" for students; the majority do not do so, and the major cost to students is in the form of time and effort that might have been invested elsewhere. For faculty and programs, externalities are minimal as this approach rarely involves additional effort. Perceived violations of "academic freedom" can be considerable--particularly if class time is used for test administration and if results are applied in an attempt to change class coverage or instructional practice. In addition, there will often be charges that available standardized tests do not adequately reflect what is actually taught. Both of these objections will likely be stronger in the major field than in general education, and are least strong with respect to surveys (Banta 1985). For the most part, however, faculty externalities will be minimal compared to administrative overhead costs. This approach, for instance, virtually requires establishment or enhancement of a testing/assessment office with responsibility for test coordination, scheduling, and reporting. For even a small institution, this function may require at least an additional one-half FTE administrative position.

This pattern of benefits, costs, and externalities assumes an "ideal type" program based solely on available instrumentation--an alternative which very few institutions actually adopt. More common is a "mixed" approach where stand-

ardized assessment instruments are used in some major departments and not others, according to the wishes and needs of their respective faculties. Where this occurs, many externalities can be avoided—particularly those associated with perceived violations of academic freedom and student-experienced burdens of testing. In general education, use of standardized instruments is often seen as an institutional "path of least resistance" for developing a credible program in response to state mandate. In these cases, faculty are rarely directly involved in the decision to proceed and the primary benefits, costs, and externalities of the program are experienced primarily among administrators. Line faculty may know little about the program and about how it operates.

Locally-Designed "Curriculum-Embedded" Assessment

An increasing number of institutions developing assessment programs are choosing to design their own instruments and to as fully as possible integrate assessment techniques with established points at which performance information is already collected. In the cognitive arena, this implies designing "curriculum-embedded" or "course-embedded" assessment techniques in which representative examples of student performance in regular coursework or examinations are collected and evaluated. In some cases, specially-designed examination questions are prepared for administration as part of the final examinations of regular classes; answers are used to both assign course grades and are scored for consistency with wider curricular objectives. In other cases, representative "portfolios" of existing student work are regularly collected and analyzed in a similar fashion. In both cases, a major benefit is that student motivation is unaffected: students know that their work will count for course grade credit, so are more inclined to do their best. Non-cognitive data-gathering is similarly integrated into regular data collection mechanisms and procedures. Existing questionnaires, such as those typically administered to current students by Student Affairs Offices to determine their

satisfaction with provided services, or those typically administered to graduates by Alumni Offices to determine current status and activities are often extended to include a range of non-cognitive developmental items (Ewell and Lisensky 1988). Another example of using existing opportunities is to extend the coverage of end-of-course questionnaires already administered to students for purposes of faculty evaluation.

Figure 3 presents primary areas of benefit, cost, and externality associated with this approach. The categories used are those of the previous section, and again an "ideal type" assessment program is assumed.

- **Benefits.** Direct benefits of this alternative accrue primarily to faculty and students. Experimental validation work at Alverno College, for example, has repeatedly substantiated the efficacy of faculty-designed assessment techniques in helping to produce gains that can be documented externally—often through subsequent administration of standardized measures or performance in the workplace (see Mentkowski and Doherty 1984). Other institutions have documented increased pass-rates on professional licensure examinations as a partial result of increased local assessment. For individual faculty members, particular benefits have been in the area of improved "test-making" skills. At Kean College in New Jersey, for example, a key secondary effect of "course-embedded" assessment in general education has been faculty-reported improvements in constructing their own examinations; similar effects are reported at the University of Tennessee, Knoxville, but are largely confined to those departments where faculty actually designed examination questions (Banta 1986). Closely related are faculty-reported benefits related to curriculum structure. In cases where faculty must design their own assessment processes, they must first refine their curricular objectives; often this process in itself can lead to improved cur-

Figure 3

Benefits, Costs, and Externalities of Institutional Assessment: Institutional Programs
Case 2: Locally-Designed "Curriculum-Embedded" Assessment

Parties-at-Interest		Benefits		Direct Costs		Externalities
Individual Students	+	- Increases in knowledge/skill	o	- Testing Fees	o	- Burdens of additional testing
	+	- Increases in graduation/persistence			-/o	- Loss of access/choice of classes/programs
	o	- Increased credibility of degree			o	- Loss of access due to biases and inequities
	o	- Better information for college choice				
Faculty	+	- Targeted teaching			--	- Burdens of designing and administering instruments
	++	- Better ability to design examinations			-	- Perceived violations of "academic freedom"
Institutions/Programs	++	- Improved curriculum structure and sequence	-	- Full program cost, if unsupported	o	- Narrowed curriculum/ "teaching to the test"
	+	- Improved planning/resource allocation			--	- Opportunity costs of faculty time
	+	- Increased faculty time committed to teaching			-	- Increased administrative "overhead"
	o	- Enhanced ability to acquire resources				
External Constituents	+	- Enhanced employee skills • general • job-related				
	+	- Better employee attitudes toward work				
General Public	o	- Assurance that tax dollars are well spent	o/-	- Additional tax dollars to support total or partial cost of program		
	+	- Increases in general welfare				

ricular coherence and course structure. In contrast, this approach generally shows little of the short-term external payoff associated with the test-based alternative. Most faculty-designed instruments are initially not seen as credible by outside authorities.

- **Costs.** Direct dollar costs of programs of this kind are uncertain because most costs are already embedded in institutional operations. The majority must be counted in the reallocation of faculty time. At an institution like Alverno, for example, it is difficult to determine what assessment "costs" because all faculty are doing it as a natural and regular part of teaching. Clearly, however, direct charges for students will be minimal. Equally clearly, incremental costs for designing and coordinating a new activity will have to be borne by the institution--either through reassignment of faculty time and/or through the employment of coordinating personnel and testing-measurement specialists to assist the faculty. Because such activities are arguably a part of teaching, moreover, they are less likely to be supported through increased revenue provided by the state. Indeed the recent trend among state initiatives is in the opposite direction: to require institutional assessment, but not to provide additional funding to institutions to pay for it (Ewell, Finney, and Lenth 1990).
- **Externalities.** Externalities associated with this approach are also largely concentrated among faculty and at the institution/program level. Just as direct dollar costs under this approach are difficult to estimate, the total amount of faculty time invested can prove considerable--particularly in the initiative's early stages. Not only is the investment considerable, but it is also likely to be unevenly distributed; most institutions rely heavily on the efforts of a few committed faculty members to serve as a core group during the program's initial years. Usually, such faculty serve as members of a multi-func-

tional (and often overworked) "assessment task force" or are drawn from the faculty of initial "pilot" departments undergoing assessment on an experimental basis. In the long term, "burnout" among this group can be considerable. For other faculty, devoting the needed time to develop meaningful local assessment processes may mean taking faculty time away from other things. Because both the coverage and technology of assessment are determined by faculty themselves, this approach may avoid some of the political opposition encountered by approaches based on standardized testing that are held to violate faculty autonomy. But the integrated approach does compel faculty to agree on common teaching objectives, and this in itself may not be easy. At the same time, administrative overhead costs for assessment may equal those associated with a test-based approach because so many diverse activities must be coordinated.

Again, the above discussion assumes adoption of an "ideal type" program in which all assessment is developed locally. Most actual institutional programs will mix features of this approach with the use of existing standardized instruments and surveys. For the most part, the decision of which features to adopt is based upon local needs and expedients. Occasionally, however, institutions will consciously elect to adopt a mixed approach in order to maximize the different kinds of benefits associated with each approach. They may, for example, use local assessment for most departmental evaluation, but occasionally administer standardized instruments to small samples of students in order to help "validate" their local processes (for example, Mentkowski and Doherty 1984). Similarly, they may employ consultants from national testing or assessment organizations not only to help faculty design better instruments, but also to help "certify" that local procedures are credible and sound.

Two State Policy Alternatives

Statewide Testing of Basic Skills

One leading set of state-level policy alternatives with respect to assessment centers on the perceived need to detect and remediate students entering higher education deficient in such basic skills as reading, writing, and computation. Statewide programs of this kind are currently in place in New Jersey, Tennessee, and Texas, and are being actively discussed in several other states. Basic features of such programs include, (a) use of a single standardized basic skills examination by all institutions in the state, (b) prohibitions against the use of results to deny admission to institutions, (c) use of results to place students assessed as deficient into appropriate remediation programs, and (d) exit testing of students using the same instrument on completion of remediation.

Figure 4 presents major areas of benefit and cost for such a program. Again using categories of benefit, cost, and externality discussed in the previous section for each party-at-interest, the figure roughly indicates the presence and intensity of each. Particularly notable are the following:

- **Benefits.** Program benefits will occur particularly for individual students in the form of documentable increases in knowledge and skills at the basic level and in increased chances of graduation. But both benefits, it is important to note, will *only* occur if remediation and associated placement are also successful—they are not direct results of the assessment program *per se*. Some benefits should also result for faculty, who are better enabled to teach at the appropriate level rather than being required to constantly remediate in the classroom. Moreover, external constituents and the general public will receive secondary benefits in the form of greater assurances about the skill levels of college students and greater accountability.

Figure 4

Benefits, Costs, and Externalities of Institutional Assessment: State Programs

Case 3: Statewide Testing of Basic Skills

Parties-at-Interest		Benefits		Direct Costs		Externalities
Individual Students	++	- Increases in knowledge/skill	+/-	- Testing Fees	-	- Burdens of additional testing
	++	- Increases in graduation/persistence			-	- Loss of access/choice of classes/programs
	o	- Increased credibility of degree			-	- Loss of access due to biases and inequities
	o	- Better information for college choice				
Faculty	+	- Targeted teaching			o	- Burdens of designing and administering instruments
	o	- Better ability to design examinations			--	- Perceived violations of "academic freedom"
Institutions/Programs	o	- Improved curriculum structure and sequence	-	- Full program cost, if unsupported	--	- Narrowed curriculum/ "teaching to the test"
	o	- Improved planning/resource allocation			o	- Opportunity costs of faculty time
	o	- Increased faculty time committed to teaching			-	- Increased administrative "overhead"
	o	- Enhanced ability to acquire resources				
External Constituents	+	- Enhanced employee skills				
	o	• general				
	o	• job-related				
General Public	+	- Better employee attitudes toward work				
	+	- Assurance that tax dollars are well spent	-	- Additional tax dollars to support total or partial cost of program		
	o	- Increases in general welfare				

- **Costs.** Overall dollar costs for a testing program of this kind can be estimated from past experience in New Jersey and emerging experience in Texas. Both incurred initial test development costs in excess of one million dollars. Operating costs are about \$9-11/ student tested, or about \$4/enrolled FTE student. How such costs should be paid is another matter. Both states currently fund the program out of general revenue. This entails a direct cost to taxpayers as well as an opportunity cost to institutions that might have received this funding for alternative purposes. Alternatively, direct costs could be passed on to students in the form of fees. In this case, there is a further choice between spreading the fee across all enrolled students as part of a tuition payment, or applying it only to those tested as they are tested. The latter alternative would have the advantage of clarity, but would be particularly burdensome for those assessed as deficient and forced to leave the institution.

- **Externalities.** A program of this kind will probably entail a range of negative externalities. For individual students, all three potential side-effects would be present. Certainly, total test-taking time would increase; evidence from New Jersey and emerging evidence from Texas suggest, for example, that institutions now administer both the statewide Basic Skills test and their own local placement examinations. Moreover, many students will be denied their initial choice of classes or programs because of deficient performance; in New Jersey, more than a third of test takers are assessed as deficient in one or more basic skills each year. If deficiencies are detected, directed placement may significantly increase the amount of time it may take a student to obtain a degree. Major negative impacts, however, would likely be initially incurred in the form of faculty opposition and "teaching to the test."

This overall pattern might be significantly changed if particular features of the proposed program were sub-

ject to modification. For example, changing the requirement that a single, statewide instrument be used would markedly reduce faculty opposition and teaching to the test. Negative impacts would remain in these areas, but would likely be not so strong. Allowing institutions to use their own instruments, moreover, would also reduce the burden of testing for individual students. It would not, however, provide as much payoff in accountability to the general public as would a program based upon common testing.

Changing the requirement that students be tested on exiting from remediation would also shift the payoff pattern for the program as a whole. Because of a demonstrable association between directed placement and persistence, individual benefits would not be so strong as in the base program, and the benefits associated with assuring external constituents and the public that college students possess basic skills would evaporate. At the same time, externalities such as teaching to the test and perceived violations of academic freedom would be all but eliminated.

Requiring Institutions to Undertake Local Assessment

As noted earlier, the center of gravity for most state-based assessment efforts has been to require institutions to design and implement their own local assessment programs (Ewell, Finney and Lenth 1990). Current assessment efforts in Virginia, Colorado, Missouri, South Dakota, New York, Arizona, Kansas, and many other states are consistent with this pattern. While many variations in what is required are apparent across the many states where such plans are in place, their general payoff pattern is presented in Figure 5. Once again, standard categories of benefit, cost, and externality are used. Notable features are as follows:

- **Benefits.** Most of the documentable benefits of this alternative are centered in the curriculum--particularly in

Figure 5

Benefits, Costs, and Externalities of Institutional Assessment: State Programs
Case 4: Requiring Institutions to Design and Implement Local Assessment Plans

Parties-at-Interest		Benefits		Direct Costs		Externalities
Individual Students	o	- Increases in knowledge/skill	-/o	- Testing Fees	-	- Burdens of additional testing
	+	- Increases in graduation/persistence			o	- Loss of access/choice of classes/programs
	+	- Increased credibility of degree			o	- Loss of access due to biases and inequities
	+	- Better information for college choice				
Faculty	o	- Targeted teaching			--	- Burdens of designing and administering instruments
	+	- Better ability to design examinations			-	- Perceived violations of "academic freedom"
Institutions/ Programs	++	- Improved curriculum structure and sequence	-	- Full program cost, if unsupported	o	- Narrowed curriculum/ "teaching to the test"
	+	- Improved planning/ resource allocation			-	- Opportunity costs of faculty time
	+	- Increased faculty time committed to teaching			-	- Increased administrative "overhead"
	+	- Enhanced ability to acquire resources				
External Constituents	+	- Enhanced employee skills • general • job-related				
	o/+	- Better employee attitudes toward work				
General Public	o/+	- Assurance that tax dollars are well spent	-	- Additional tax dollars to support total or partial cost of program		
	+	- Increases in general welfare				

improvements in curricular structure and sequence. Benefits to individual students are certainly present, but documentable increases in knowledge and skill will be difficult to claim. Some external benefits will also be present, but the primary focus on internal evaluation and improvement will also imply that obtained information is less directly useful to external constituents. All these benefits, of course, will depend heavily upon what the institution in fact proposes to do. Absent information on graduate placement, for example, benefits associated with consumer choice will largely disappear. Effective "packaging" of information intended largely for internal management, however, can also serve to demonstrate accountability to the public (Ewell 1990).

- **Costs.** Overall costs for programs of this design are in the standard estimated range of \$7-12/FTE student. Once again, however, the question of who should bear these costs has a number of answers. Student fee alternatives, as practiced in South Dakota, seem comparatively inequitable because individual students do not generally receive proportionate direct benefit. Requiring institutions to fully absorb these costs as part of their existing budget, as practiced in most states, may require substantial reallocation and associated opportunity costs. Where such programs are substantially supported by additional dollars, as for example in Virginia and New Jersey, an additional burden is placed on the taxpayer, who may or may not receive commensurate payoff in the form of accountability and improvements in general welfare. In practice, many states share such costs between institutions and taxpayers--appropriating limited additional funds to support local assessment, or using existing categorical grant or non-base incentive funds to support a range of institutional efforts.
- **Externalities.** The most important negative consequences associated with this alternative occur for faculty and

for institutions. For faculty, a major consequence is a considerable investment of time in the design of assessment instruments and in scoring and interpreting the results of local examinations. Although each institution is free to choose its own approach, many faculty will also feel threatened in the initial stages of the program. Both these consequences may change depending upon the kinds of assessment instruments used: faculty-designed instruments will increase faculty burden and reduce opposition; commercial standardized tests (even if chosen by faculty themselves) will increase the perceived threat but will substantially reduce direct faculty burden. For the institution, moreover, substantial costs may be incurred in establishing an additional administrative function.

This pattern can also be substantially altered by changing one or more features of program design. For institutions, the payoff structure shifts markedly depending upon the percentage of direct costs that is covered by additional resources. If the full cost of the program must be absorbed, most institutions will see such a program as a "breakeven" proposition at best; most will therefore initially resist its adoption as state policy. For faculty, opposition and burden are directly affected by the kinds of approaches proposed--particularly the degree to which they rest upon standardized testing and the level of choice that faculty are allowed in choosing appropriate assessment instruments and techniques. Emerging experience seems clear on the point that some degree of faculty opposition will be experienced no matter what kind of program is proposed. It is also clear, however, that the greater the degree of faculty involvement, the more likely curricular benefits will be.

For individual students, however, few features of the program's design will cause a shift in preference: most benefits are indirect, and because assessment results are not used to determine the fates of individual students, important externalities are absent. The major exception

here is cost, as given uncertain individual payoffs, it will be difficult to argue that individual students should bear a substantial cost burden for this activity.

5

Conclusion

Choosing an appropriate course of action in an area as complex as assessment is a process influenced by many factors. Institutions and state systems must be guided not only by their own information needs, but also by their respective histories, resource contexts, and cultures. Formal consideration of the benefits, costs and externalities that have been experienced by others facing the same set of choices can be informative, but it can never be definitive. Many of those charged with implementing assessment have found that a systematic review of the factors noted in this monograph is helpful in sorting through available options, and they are advanced in this spirit. Ultimately, however, each institution or system must act in its own way, and must develop an approach to assessment that best meets its own unique needs and conditions.

References

- Adelman, Clifford W. *Performance and Judgment*. Washington, D.C.: OERI, U.S. Department of Education, 1988.
- Banta, Trudy W. (Ed.). *Student Outcomes Assessment: Promise and Pitfalls*. New Directions for Institutional Research. San Francisco: Jossey-Bass, 1988.
- Banta, Trudy W. (Ed.). *Performance Funding in Higher Education: A Critical Analysis of Tennessee's Experience*. Boulder, Colo.: NCHEMS, 1986.
- Banta, Trudy W. "Use of Outcomes Information at the University of Tennessee, Knoxville." In Peter T. Ewell (Ed.), *Assessing Educational Outcomes*. New Directions for Institutional Research. San Francisco: Jossey-Bass, 1985, pp. 19-32.
- Banta, Trudy W., and Fisher, Homer S. "Performance Funding: Tennessee's Experiment." In J. Folger (Ed.), *Financial Incentives for Academic Quality*. New Directions for Higher Education. San Francisco: Jossey-Bass, 1984, pp. 29-41.
- Banta, Trudy W., and Moffett, Marian S. "Performance Funding in Tennessee: Stimulus for Program Improvement." In Diane Halpern (Ed.), *Student Outcomes Assessment: What Institutions Stand to Gain*. New Directions for Higher Education. San Francisco: Jossey-Bass, 1987, pp. 35-44.
- Bowen, Howard R. "The Reform of Undergraduate Education: Estimated Costs." Invited paper presented at a Winespread Conference, Racine, Wisconsin, 1985.
- Bowen, Howard R. *The Costs of Higher Education*. San Francisco: Jossey-Bass, 1980.

- Bowen, Howard R. *Investment in Learning*. San Francisco: Jossey-Bass, 1977.
- Boyer, Carol M., and Ewell, Peter T. "State Based Case Studies of Assessment Initiatives in Undergraduate Education: Chronology of Critical Points." Denver: Education Commission of the States, April 1988.
- Boyer, Carol M., Ewell, Peter T., Finney, Joni E., and Mingle, James R. "Assessment and Outcomes Measurement: A View from the States." In *AAHE Bulletin*. Washington, D.C.: American Association for Higher Education, March 1987, pp. 8-12.
- Boyer, Carol M., and Finney, Joni E. "Assessment and Outcomes Measurement: A View from the States. Individual State Profiles." Denver, Colo.: Education Commission of the States, 1987.
- Calhoun, William H. "Measuring Achievement in the Major Field." In Trudy W. Banta (Ed.) *Performance Funding in Higher Education: A Critical Analysis of Tennessee's Experience*. Boulder, Colo.: NCHEMS, 1986, pp. 73-84.
- Ciereszko, A. A. "Mandated Testing in Florida: A Faculty Perspective." In Diane Halpern (Ed.), *Student Outcomes Assessment: What Institutions Stand to Gain*. New Directions for Higher Education. San Francisco: Jossey-Bass, 1987, pp. 67-75.
- Conrad, C. R., and Wilson, R.F. *Program Reviews: Institutional Approaches, Expectations, and Controversies*. ASHE/ERIC Higher Education Report No. 5. Washington, D.C.: Association for the Study of Higher Education, 1985.
- Curry, Wade, and Hager, Elizabeth. "Assessing General Education: Trenton State College." In Diane Halpern (Ed.), *Student Outcomes Assessment: What Institutions Stand to Gain*. New Directions for Higher Education. San Francisco: Jossey-Bass, 1987, pp. 57-65.

- Day, G. S. "Assessing the Effects of Information Disclosure Requirements." In David A. Aaker and George S. Day (Eds.), *Consumerism: Search for the Consumer Interest*. New York: Free Press, 1978, pp. 130-45.
- El-Khawas, Elaine. *Campus Trends Survey*. Washington, D.C.: American Council on Education, 1988.
- El-Khawas, Elaine. *Campus Trends Survey*. Washington, D.C.: American Council on Education, 1987.
- El-Khawas, Elaine. *Campus Trends Survey*. Washington, D.C.: American Council on Education, 1986.
- Ewell, Peter T. *Assessment and the "New Accountability: A Challenge for Higher Education's Leadership"*. Denver, Colo.: Education Commission of the States, 1990.
- Ewell, Peter T.; Finney, Joni E.; and Lenth, Charles. "Filling in the Mosaic: The Emerging Pattern of State-Based Assessment." In *AAHE Bulletin*, 42(8), April 1990.
- Ewell, Peter T. "Implementing Assessment: Some Organizational Issues." In Trudy W. Banta (Ed.), *Student Outcomes Assessment: Promise and Pitfalls*. New Directions for Institutional Research. San Francisco: Jossey-Bass, 1988.
- Ewell, Peter T. and Lisensky, Robert P. *Assessing Institutional Effectiveness: Redirecting the Self-Study Process*. Washington, D.C.: Consortium for the Advancement of Private Higher Education, 1988.
- Ewell, Peter T. "Establishing a Campus-Based Assessment Program: A Framework for Choice." In D. Halpern (Ed.), *Student Outcomes Assessment: A Tool for Improving Teaching and Learning*. New Directions in Higher Education. San Francisco: Jossey-Bass, 1987.
- Ewell, Peter T. "Effectiveness Information and the Institutional Change: An Exploratory Analysis." Boulder, Colo.: NCHEMS, 1985.
- Ewell, Peter T. *The Self-Regarding Institution: Information for Excellence*. Boulder, Colo.: NCHEMS, 1984a.

- Ewell, Peter T. *Using Outcomes Information in Program Planning and Decisionmaking*. Final Report to the W. K. Kellogg Foundation. Boulder, Colo.: NCHEMS, 1984b.
- Ewell, Peter T. *Information on Student Outcomes: How to Get It and How to Use It*. Boulder, Colo.: NCHEMS, 1983.
- Ewell, Peter T. and Boyer, Carol M. "Acting Out State Mandated Assessment: Some Evidence from Five States." *Change Magazine*, June/July, 1988.
- Ewell, Peter T., and Jones, Dennis P. "The Cost of Assessment." In Clifford Adelman (Ed.), *Assessment in American Higher Education: Issues and Contexts*. Washington, D.C.: OERI, Department of Education, 1986, pp. 33-46.
- Farmer, Don W. *Enhancing Student Learning: Emphasizing Essential Competencies in Academic Programs*. Philadelphia: Pew Memorial Trust, 1988.
- Forrest, Aubrey W. *Increasing Student Competence and Persistence: The Best Case for General Education*. Iowa City, IA: ACT National Center for the Advancement of Educational Practices, 1982.
- Huber, G. P. *Managerial Decisionmaking*. Glenview: Scott Foresman and Co., 1980.
- Hyman, Randy, Jamison, Alton, Woodard, Dudley B., Jr., and von Destinon, Mark. *Student Outcomes Assessment Survey, 1987-1988*. Washington, D.C.: National Association of Student Personnel Administrators, 1988.
- Kemerer, F. R., Baldrige, J. V., and Green, K. C. *Strategies for Effective Enrollment Management*. Washington, D.C.: AASCU, 1982.

- Krueger, Darrell W., and Heisserer, Margarita L. "Assessment and Involvement: Investments to Enhance Learning." In Diane Halpern (Ed.), *Student Outcomes Assessment: What Institutions Stand to Gain*. New Directions for Higher Education. San Francisco: Jossey-Bass, 1987, pp. 45-56.
- Levin, H. M. *Cost Effectiveness: A Primer*. Beverly Hills: Sage Publications, 1983.
- Lewis, Darrell R., and Wasescha, Anna M. "Costs and Benefits of Assessment in Postsecondary Education." Paper presented at the 1987 ASHE National Meeting, San Diego, California, February 1987.
- Losak, J., and Wright, T. "Should One Variable (CLAST) Be Used to Determine Entrance to Upper Division at the State University System in Florida?" Miami, FL: Miami-Dade Community College, 1983.
- McClain, Charles J. *In Pursuit of Degrees with Integrity: A Value-Added Approach to Undergraduate Assessment*. Washington, D.C.: AASCU, 1984.
- McClain, Charles J., and Krueger, Darrell W. "Using Outcomes Assessment: A Case Study in Institutional Change." In Peter T. Ewell (Ed.), *Assessing Educational Outcomes*. New Directions for Institutional Research. San Francisco: Jossey-Bass, 1985, pp. 33-46.
- Northeast Missouri State University. *Five-Year Planning Document*. Submitted to the Coordinating Board for Higher Education of the State of Missouri, Northeast Missouri State University, Kirksville, MO, 1987.
- State of Florida Postsecondary Education Planning Commission (PEPC). *An Assessment of the General Education Curriculum in State Universities and Community Colleges*. Tallahassee, FL: PEPC, 1989, Report #4.
- Zemsky, Robert, and Oedel, Penney. *The Structure of College Choice*. New York: College Entrance Examination Board, 1983.

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